

PATENT APPLICATION

Attorney Docket No. A02111US (98570.2)

TITLE OF THE INVENTION

"METHOD AND APPARATUS FOR TRANSPORTING PRESSURIZED GAS  
5 CANISTERS"

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CROSS-REFERENCE TO RELATED APPLICATIONS

Priority of U.S. Provisional Patent Application Serial  
10 No. 60/413,103, filed 09/24/2002, incorporated herein by  
reference, is hereby claimed.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR  
DEVELOPMENT

Not applicable

15 REFERENCE TO A "MICROFICHE APPENDIX"

Not applicable

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to cargo transportation  
20 racks and more particularly to an improved transport  
apparatus for transporting pressurized gas canisters.

2. General Background of the Invention

In the offshore oil and gas well drilling and  
production industries, there are a number of oil and gas  
25 well drilling and production facilities located in a marine  
environment. Many of these facilities are offshore oil and  
gas well drilling and production platforms located in very  
deep water. They are often many miles from the nearest  
port.

30 A problem exists in the safe and economical transport  
of supplies to offshore oil and gas well drilling and  
production platforms. A particular problem is the  
transportation of pressurized gas canisters that are needed

on offshore oil well drilling and production platforms to perform tasks such as, for example, welding.

#### BRIEF SUMMARY OF THE INVENTION

The present invention solves these prior art problems  
5 and shortcomings by providing a pressurized gas canister transport apparatus that includes a frame that has a bottom panel, a periphery, an upper panel that has a periphery, and a central, generally vertically extending panel that has an upper end portion attached to the top panel and a  
10 lower end portion attached to the bottom panel.

One or more inclined structural members connect the upper and lower panels at positions spaced away from the central panel.

First and second tank storage spaces are provided on  
15 opposing sides of the central panel and extend between the upper and lower panels.

A plurality of clamps are connected to the central panel and include clamps on opposing sides of the central panel.

20 Transversely extending members stand between the inclined members at positions in between the upper and lower panels and each clamp has bolted connections that enable the clamps to hold a pressurized gas canister when the bolted connection is tightened and to release a gas  
25 cylinder when the bolted connection is loosened.

The gas canister transport apparatus further includes each clamp having a first section attached to the central panel and a second section that removably attaches to the first section with said bolted connections.

30 The first section is preferably shaped to conform generally to the outer surface of a generally cylindrically shaped pressurized gas canister to be transported.

The clamps can include a plurality of upper clamps and

a plurality of lower clamps that are positioned below the upper clamps.

The transversely extending members include upper transversely extending members and lower transversely extending members that are below the upper transversely extending members.

The inclined structural members are generally vertically positioned.

The frame preferably has four corners, each corner being occupied by one of said inclined structural members.

The upper panel and central panel are preferably welded together with a welded connection.

#### BRIEF DESCRIPTION OF THE DRAWINGS

For a further understanding of the nature, objects, and advantages of the present invention, reference should be had to the following detailed description, read in conjunction with the following drawings, wherein like reference numerals denote like elements and wherein:

Figure 1 is a perspective view of the preferred embodiment of the apparatus of the present invention;

Figure 2 is a perspective, exploded view of the preferred embodiment of the apparatus of the present invention;

Figure 3 is a fragmentary of the preferred embodiment of the apparatus of the present invention; and

Figure 4 is a fragmentary, sectional view of the preferred embodiment of the apparatus of the present invention.

#### DETAILED DESCRIPTION OF THE INVENTION

Gas canister transport apparatus 10 is shown in Figures 1-2. The apparatus 10 includes a frame 11 having an upper end portion 12 and a lower end portion 13. Frame 11 includes an upper panel 14 and a lower panel 15 connected

with a central vertically extending panel 16. Lower panel 15 can be reinforced with beams, transverse plates, or the like to help support the weight of cannisters 40 43. An upper welded connection 20A joins the upper panel 14 to the central panel 16. A lower welded connection 20B preferably joins the central panel 16 to the lower panel 15.

A plurality of lifting eyes 19 are provided on the upper panel 14 for enabling a sling or a plurality of slings to be fitted to the apparatus 10 at the lifting eyes 19 so that the apparatus 10 can be lifted with a crane or like lifting device. Each lifting eye preferably connects at weld 27 to both top panel 12 and a column 24.

A plurality of forklift receptacle openings 21-23 are provided that enable a forklift to engage its tines into the receptacles 21-23 for lifting the device and moving it about a dock, vessel deck, or platform floor. Receptacle 21 is an upper receptacle attached to upper panel 12. Receptacles 22, 23 are lower receptacles attached to lower panel 15.

A plurality of four inclined or vertical column members 24 are provided, preferably one member 24 at each corner of upper and lower panels 14, 15. A plurality of transverse members are provided, including a plurality of upper transverse members 28 and a plurality of lower transverse members 29. Each transverse member spans between two columns 24 as shown in Figures 1-2. Each vertical or inclined member 24 is ell shaped in transverse cross section, providing two flanges 25, 26 that join to form a ninety degree angle.

The apparatus 10 provides a plurality of clamps 30, each having a pair of clamp sections 31, 32. Each clamp section 31, 32 has a respective conforming surface 33, 34 that conforms generally to a cylindrically shaped

pressurized gas canister 40-43 to be transported using the apparatus 10. Each section has opposed flanges 45, 46. Bolted connections 44 are provided for clamping a first clamp section 31 to a second clamp section 32. Bolted  
5 connections 44 each include a bolt 35 and of nut 36. Each of the bolts 35 has an opening 37 through which a cotter pin 38 can be inserted to prevent any disengagement of the nut 36 and bolt 35 over a period of time, such as during shipment.

10 In use, the apparatus 10 can carry a plurality of preferably four or more gas canisters, preferably positioning oxygen canisters 41 on one side of central panel 16 and canisters containing combustible materials such as acetylene 42 on an opposite side. An acetylene  
15 canister 42 is shown in the drawings. Other canisters 43 can include, for example, oxygen and nitrogen.

#### PARTS LIST

The following is a list of suitable parts and materials for the various elements of the preferred  
20 embodiment of the present invention.

	<u>PART NO.</u>	<u>DESCRIPTION</u>
	10	gas canister transport apparatus
	11	frame
	12	upper end portion
25	13	lower end portion
	14	upper panel
	15	lower panel
	16	central panel
	17	upper welded connection
30	18	lower welded connection
	19	lifting eye
	20A	weld
	20B	weld

	21	upper forklift receptacle
	22	lower forklift receptacle
	23	lower forklift receptacle
	24	inclined or vertical member
5	25	flange
	26	flange
	27	weld
	28	upper transverse member
	29	lower transverse member
10	30	clamp
	31	clamp section
	32	clamp section
	33	conforming surface
	34	conforming surface
15	35	bolt
	36	nut
	37	opening
	38	cotter pin
	39	flange
20	40	gas canister
	41	oxygen canister
	42	acetylene canister
	43	other canister
	44	bolted connection
25	45	flange
	46	flange

The foregoing embodiments are presented by way of example only; the scope of the present invention is to be limited only by the following claims.